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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/963,565	09/27/2001	Satoru Hirose	50195-200	8904

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Washington, DC 20005-3096

EXAMINER

KOVAL, MELISSA J

ART UNIT	PAPER NUMBER
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2851

DATE MAILED: 07/31/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/963,565

Applicant(s)

09963565

Examiner

Melissa J Koval

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 September 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4 & 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

The drawings are objected to because in Figure 3, for example, element 22 is described as "three primaries division portion". This phrase seems to describe a color separation system or device, but the description is awkwardly worded.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

The disclosure is objected to because of the following informalities:

In The Description of Figures 4 and 5, for example, the phrase "constitution of three primaries dividing section" is used. Although it is understood that the Applicant is referring to a color separation system or device, the phraseology is awkward and is likely to have been derived from a literal translation. Applicant may want to carefully review the specification to eliminate all such idiomatic wording.

Appropriate correction is required.

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Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3, 4 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Yasugaki et al.

Refer to Figures 2 and 9 in conjunction with Figures 5 and 8 of Yasugaki et al. for example.

Claim 1 sets forth: "A display device, comprising:

a light source (rays of light emerge from image display device 21);

an image generator for outputting an image signal of an image to be displayed (image signal 56 and image distortion correcting circuit 55); and

an image projector for processing light from said light source by use of the image signal outputted from said image generator and for projecting an image on a screen of a

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predetermined curved surface (relay optical systems 22, 23, and 24 with curved reflecting mirror 25),

wherein said image projector allows an aberration shape of an optical system on a projected image to be substantially coincide with the shape of a projection curved surface of said screen."

With respect to claim 3, refer to Figures 6(a), 6(b) and 7. Refer to column 6, lines 35 through 67, and column 7, lines 1 through 3.

Claim 4 is rejected for the reasons already given with respect to claims 1 and 3.

Claim 7 is rejected for the same reasons already given with respect to claim 1.

Claims 1, and 4 through 7 are rejected under 35 U.S.C. 102(e) as being anticipated by Potin.

Refer to Figure 4 of Potin, for example.

Claim 1 sets forth: "A display device, comprising:

a light source (Light beam L1 is created from device 2);

an image generator for outputting an image signal of an image to be displayed (image generator 9); and

an image projector for processing light from said light source by use of the image signal outputted from said image generator and for projecting an image on a screen of a predetermined curved surface (relaying optical system 5),

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wherein said image projector allows an aberration shape of an optical system on a projected image to be substantially coincide with the shape of a projection curved surface of said screen."

Refer to column 3, lines 43 through 64.

With respect to claim 4, refer to column 2, lines 5 through 49.

With respect to claim 5, refer to Figure 7 of Potin.

With respect to claim 6, visor 1 shown by Potin has a separate section for each eye seamlessly joined in the central area between the observer's eyes. A projection system for each eye is provided.

Claim 7 is rejected for the same reasons applied to already rejected claim 1.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yasugaki et al..

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Potin as applied to claims 1, and 4 through 7 above, and further in view of Negishi et al.

Claim 2 sets forth: "The display device according to claim 1, wherein the shape of the projection curved surface of said screen is a curved surface shape between Petzval

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surface by a curvature of field of a projection optical system and a tangential image surface of astigmatism and a spherical image surface."

Although claim 2 is not directly addressed by Potin, it is implied in the Summary of the Invention, column 1, lines 65 through 67, and column 2, lines 1 through 59.

The relationship of the Petzval condition to astigmatism is discussed in Negishi et al. in column 3, lines 13 through 55, through columns 34, 35, 36, 37 and column 38, lines 1 through 65. Curved surfaces and distortion correction for such surfaces is discussed therein.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the relationship between the Petzval condition and astigmatism of a surface when aberration correction is desired. The motivation for one having ordinary skill in the art to do so would be to accurately project a distorted image to correctly compensate for a curved projection surface thus resulting in an image viewable without aberration. As evidenced by both Potin and Negishi et al, it is well known in the art that an aberration free image can be achieved by distorting an image before it is projected onto a curved surface in order to compensate for distortion that would otherwise be created by the curved surface.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kessler et al. U.S. Patent 6,416,181 B1 teaches a monocentric autostereoscopic optical apparatus and method.

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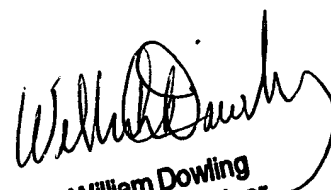
Aoki et al. U.S. Patent Application Publication US 2002/0084950 A1 teaches a display device for use in a vehicle.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melissa J Koval whose telephone number is (703) 308-4801. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Russell Adams can be reached on Monday through Thursday at (703) 308-2847. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3431 for regular communications and (703) 308-7382 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

MJK
July 27, 2002


William Dowling
Primary Examiner